REMARKS:

REMARKS REGARDING THE NEW CLAIMS:

The new claims have been added in place of the originally submitted claims for variously claiming the invention. The claimed subject matter, however, is commensurate in content and scope with the disclosure as originally filed, and therefore no new matter has been added. New independent claim 21 predicts the ***current driving environment*** within which the vehicle is operating based on a plurality of measurements of (i) at least one driver characteristic and (ii) at least one vehicle characteristic. Claims 22-47 which depend therefrom further clarify the invention by the inclusion of further limitations thereto.

New independent claim 48 is directed toward ascertaining a ***large-scale driving pattern*** that is indicative of the ***current driving environment*** of an operator driven vehicle from statistical pattern recognition analysis of data collected on an essentially real-time basis that is representative of at least one of (i) a non-GPS-based, geographically unspecific vehicle characteristic or (ii) a physical characteristic of an operator of an operator-driven vehicle. Claims 49-66 which depend therefrom further clarify the invention by the inclusion of further limitations thereto.

New independent claim 67 is directed toward ascertaining a ***large-scale driving pattern*** that is indicative of the ***current driving environment*** of an operator driven vehicle from statistical pattern recognition analysis of data collected on an essentially real-time basis that is representative of a vehicle characteristic which is further limited to a non-GPS-based, geographically unspecific vehicle characteristic in claim 68.

New independent claim 69 is directed toward ascertaining a ***large-scale driving pattern*** that is indicative of the ***current driving environment*** of an operator driven vehicle from statistical pattern recognition analysis of data collected on an essentially real-time basis that is representative of a physical characteristic of an operator which is alternatively limited to head movement and eye movement in claims 70 and 71, respectively.

IN RESPONSE TO THE OFFICE ACTION:

THE REJECTION UNDER 35 U.S.C. § 102:

Original claims 1-20 were rejected under 35 U.S.C. §102(b) as being anticipated by Lemelson *et al.* (the '161 patent). It is reminded that for there to be anticipation under 35 U.S.C. §102, "each and every element" of the claimed invention must be found either expressly or inherently described in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) and references cited therein. See also *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1571, 230 USPQ 81, 84 (Fed. Cir. 1986) ("absence from the reference of any claimed element negates anticipation."); *In re Schreiber,* 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997). As pointed out by the court, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). An anticipating reference must describe the patented subject matter with sufficient clarity and detail to establish that the subject matter existed and that its existence was recognized by persons of ordinary skill in the field of the invention. *ATD Crop. V. Lydall, Inc.*, 159 F.3d 534, 545, 48 USPQ 2d 1321, 1328 (Fed. Cir. 1998). See also *In re Spada*, 911 F.2d 705, 708, 15 USPQ 2d 1655, 1657 (Fed. Cir. 1990).

Regarding the subject matter of claims 1-12 and 14-19, Examiner has cited the following textual passages from the '161 patent, as well as Fig. 5, and all of which is provided immediately below for ease in reference.

(Col 1, lines 13-51) The invention relates generally to an apparatus and method of precisely determining the actual position and attitude of a host vehicle operating on a select course or path, such as, a highspeed highway and/or in congested traffic, or an aircraft in a landing pattern, and of multiple moving or fixed targets which represent potential collision hazards with a host vehicle, and, then, generating and displaying warning signals and avoidance maneuvers to avoid the collision and, in the absence of effective timely action by the host operator, automatically controlling the host vehicle to avoid the collisions or minimize any injuries and damage therefrom. More particularly, the invention relates to the use of a Global Positioning System ("GPS"), and a differential GPS ("DGPS") supplemented by a Local or Psuedolite Positioning System ("LPS" or "Psuedolite") as the primary host vehicle and target locating system with centimeter accuracy, further supplemented by any of a plurality of conventional all-weather and/or visual scanners and digital computer systems to detect, recognize, track and predict the collision impact point of all relevant potential targets, including other vehicles, fixed geographical obstructions, pedestrians and the like. More particularly, the invention further relates to multiple antennae, GPS determined vehicle attitude for use in generating automobile-on-the-highway, multiple target relative location, and collision avoidance warnings and maneuvers. More particularly, the invention further relates to an inter-vehicle and vehicle to base or satellite communication system for transmitting GPS, DGPS, and LPS position data, as well as, relevant target data to other vehicles and central or local control centers for information and control action. More particularly, the present invention still further relates to the use of neural networks and fuzzy logic rule sets for generating and developing optimal and prioritized warning and avoidance maneuvers, and generating related optimally coordinated control signals for all relevant host automobile control systems which are then automatically implemented, subject to operator intervention and override, to avoid collisions or to optimize prevention of injury or damage.

(Col 11, lines 32-48) A still further feature of this aspect of the invention warning the operator of the one automobile of an expert driving response, and coordinately actuating the control systems only if a collision remains imminent. The warning step includes, for example, visually indicating the existence of a hazardous condition, such as, displaying a visually perceptible symbol on a windshield of the one automobile including the relative position and motion between the one automobile and any collision hazard. A variety of other warning modes are disclosed including speech synthesis.

A still further feature of this aspect of the invention the step of includes operating one or more of the following systems depending on the kind of expert driving response determined by the fuzzy logic associative memory: a brake, acceleration, steering, horn, light, windshield wiper, seat, mirror, air conditioning, heater, defogger and communication.

(Col 15, lines 18-20) Image scanning is used to augment the GPS location and vehicle velocity/acceleration data and to evaluate and classify road and highway hazards as described below.

(Col 15, lines 55-58) The accuracy and response time performance of the real-time GPS motor vehicle warning and control systems and methods herein disclosed may be enhanced with the use of differential GPS implementations.

(Col 19, lines 05-07) One way of combining such multiple positions may be by an averaging method or a majority rule method.

(Col 22, lines 44-56) As shown in FIG. 5, the video preprocessor 102 performs necessary video image frame management and data manipulation in preparation for image analysis. The preprocessor 102 may also be used in some embodiments for digital prefiltering and image enhancement. Actual image data can be displayed in real time using video display 110 via analog-to-digital converter 108. The image display may include highlighting of hazards, special warning images such as flashing lights, alpha-numeric messages, distance values, speed indicators and other hazard and safety related messages. Simulated as well as actual video displays may also be used to enhance driver recognition of dangerous situations.

(Col 30, lines 15-24) The Hazard/Object State Vector also serves as an index into the total FAM. A simple address translation provides the actual address of the FAM locations appropriate for the detected hazard/object combination indicated in the vector. Control signals are then directly read from the FAM ensuring rapid overall system response. Signals are immediately generated to control braking, steering and warning systems as shown in FIG. 9. These output signals are likewise treated as fuzzy variables with membership classes as shown in FIG. 10. Defuzzification takes place in processing block 214 of FIG. 9 as herein above described.

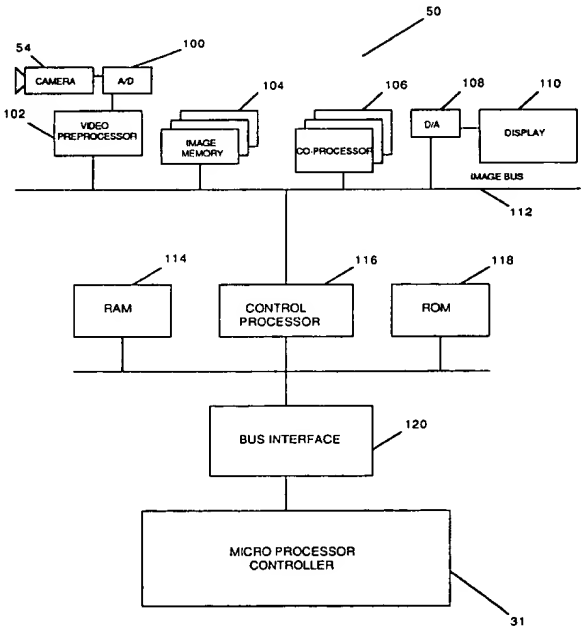

FIGURE 5

While no longer directly applicable since the rejected claims have been cancelled, these Examiner-cited excerpts from the '161 patent do serve as a useful basis regarding the allowable nature of the presently pending claims. A pervasive feature of the claims (both original and those that are presently added) is ascertainment (claim 48, 67 and 69) or prediction (claim 21) of the current driving environment of an operator driven vehicle.

The aspect of "driving environments" is initially addressed in Applicant's paragraphs [0005] - [0006] where it is explained that the distinguishment of such driving environments may be made based on large and small time-scale driving patterns. Still further, reference can be made to Merriam-Webster's dictionary (see Exhibit A hereto) where "environment" is defined as "the surrounding conditions, influences, or forces that influence or modify." Specific examples are identified in the last sentence of paragraph [0006] where it is stated that "[e]xamples of relevant driving conditions or environments is city driving, highway driving and suburban driving."

In paragraph [0007], Applicant distinguishes environment as addressed in the invention's disclosure against global positioning system (GPS) geographic location determination such as disclosed in the '161 patent. Among other differences, it is pointed out that GPS-based information is not based on real-time empirical data, and accuracy can be limited for such reasons as variations in traffic density. That is to say, the position of the vehicle, even when coupled with known information about the roadway and specific location upon that roadway at which the vehicle has been pin-pointed, is not an accurate predictor of the existing driving environment as claimed and defined by Applicant. This fact will be readily recognized by any driver who has been forced to creep along in slow-speed traffic on what would otherwise be recognized as a section of high-speed freeway. In other words, the "driving environment" which was slow-moving traffic would not have been ascertained/predicted based on knowing the location of the vehicle which is the focus of the '161 patent as illustrated by the above-excerpts therefrom.

In claim 22, it is recited that the measured driver characteristic is made by direct body scan of the driver. This aspect is further clarified as eye and/or head movement in claims 27 and 28.

Claim 23 further recites that the vehicle performance characteristic is non-GPS based and geographically unspecific. This limitation is diametrically opposed to the disclosure of the '161 patent. Specific examples are recited in claim 25.

Claim 24 adds that a data set resulting from the taken measurements are statistically segregable into a plurality of driving environment categories.

In claim 26, reference data is utilized that has been appended with driver annotations indicative of currently existing driving environment (paired with measured data) thereby enabling look-up analysis of each real-time collected measurement.

Claims 34-41 are directed toward the invention's statistically (probabilistic) associated aspect of utilizing a pre-processing step over a predetermined time window in which the series of iteratively collected measurements of the driver characteristic and the vehicle characteristic are analyzed for purposes of feature extraction. See particularly Applicant's paragraphs [0060] and [0063]. The further defined aspect of "small-time scale driving patterns" are recited in claims 37-39.

Claims 29-33 and 42-47 all depend (either directly or indirectly) from independent claim 21, and consequently recite further limitations thereto. With respect to claims 21-47, none of the claimed invention(s) are disclosed, suggested or taught in any reference of record, nor any legally appropriate combination thereof.

Independent claim 48 recites a method for ascertaining, on an essentially real-time basis, large time-scale driving patterns indicative of the current driving environment of an operator-driven vehicle. Via repetitive sensing (on an essentially real-time basis) of at least one of (i) a non-GPS-based, geographically unspecific vehicle characteristic or (ii) a physical characteristic of the operator of an operator-driven vehicle, a data set is established upon which statistical pattern recognition analysis is performed. From the analysis, a large time-scale driving pattern occurring during the collection of the data set is ascertained. Regarding the terminology "physical characteristic of an operator," reference is made to Merriam-Webster's dictionary (see Exhibit B hereto) where "physical" is defined as "of or relating to the body" and which is consonant with Applicant's disclosure and claim recitations.

Claim 50 specifies categorization of the ascertained large time-scale driving pattern into a category representative of the driving environment occurring during the collection of the data set. Again, reference is made to Applicant's paragraphs [0005] - [0006] for

definition and clarification of driving environments and large time-scale driving patterns as recited in the claims.

Claims 51-56 address exemplary driving environments such as highway, suburban and city driving environments.

Claims 62-65 variously recite that the measured driver characteristic is made by direct body scan of the driver and that the driver characteristics of interest are eye and/or head movement.

Claims 57-61 and 66 all depend (either directly or indirectly) from independent claim 48, and consequently recite further limitations thereto. With respect to claims 49-66, none of the claimed invention(s) are disclosed, suggested or taught in any reference of record, nor any legally appropriate combination thereof.

Independent claim 67 recites a method for ascertaining, on an essentially real-time basis, large time-scale driving patterns indicative of the current driving environment of an operator-driven vehicle considering at least a vehicle characteristic (but not necessarily exclusively) from which a data set is established upon which statistical pattern recognition analysis is performed. From the analysis, a large time-scale driving pattern occurring during the collection of the data set is ascertained. Claim 68 further recites that the vehicle characteristic is non-GPS-based and geographically unspecific. Support for the scope of claim 67 and 68 is found at least in Applicant's paragraphs [0019] - [0059]. It is respectfully asserted that the invention so claimed is not disclosed, suggested or taught in any reference of record, nor any legally appropriate combination thereof.

Independent claim 69 recites a method for ascertaining, on an essentially real-time basis, large time-scale driving patterns of an operator-driven vehicle considering at least a physical characteristic of the operator from which a data set is established upon which statistical pattern recognition analysis is performed. From the analysis, a large time-scale driving pattern occurring during the collection of the data set is ascertained. Claims 70-71 recite that the measured driver characteristic is head and eye movement, respectively. Claim 72 specifies determination of a current driving environment based on the ascertained large time-scale driving pattern. It is respectfully asserted that the invention so claimed is not disclosed, suggested or taught in any reference of record, nor any legally appropriate combination thereof.

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The undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 08-3038, referencing Order No. 07589.0018.NPUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,

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